

Remarks

Claims 1 and 22 have been amended, and claims 32-51 were previously. Claims 1-31 are pending in the application. Applicants respectfully request reconsideration in view of the following remarks.

The present invention is directed to an improved waveguide system that uniquely uses an out-of-plane waveguide to substantially reduce crosstalk between waveguides in the system. For example, Figure 8 of the specification shows one embodiment of the invention comprising an out-of-plane waveguide (30) directionally coupled to waveguide (10). In this embodiment, the out-of-plane waveguide (30) crosses over waveguides (11-13) instead of intersecting waveguides (11-13) as was done in the prior art, thereby substantially reducing crosstalk. Braun (U.S. 6,665,476) neither discloses, teaches, nor suggests using an out-of-plane waveguide that crosses over other waveguides to reduce crosstalk. Rather, Braun discloses a wavelength selective optical device comprising waveguides (102 and 104) and a resonator (204) that selectively couples optical signals between the waveguides (102 and 104) (see Figure 2 of Braun). Braun's optical device does not address the problem of crosstalk between waveguides.

Support for Amendment

Claim 1 has been amended to recite "the third waveguide having a fourth waveguide portion crossing over the first waveguide portion, the fourth waveguide portion not being substantially coupled with the first waveguide portion." This amendment is fully supported by the specification. For example, Figure 8a shows the third waveguide (30) having a fourth waveguide portion crossing over the first waveguide portion (11). Therefore, the specification fully supports "the third waveguide having a fourth waveguide portion crossing over the first waveguide portion." The specification also discloses that "very little, or essentially no, light" is lost in the third waveguide (30) when crossing over the first waveguide portion (see page 11, paragraph 45 of the specification). This supports the fourth waveguide portion of the third waveguide "not being substantially coupled with the first waveguide portion." The

specification further discloses an example in which the coupling loss due to cross over is very low at only 0.002 dB (see page 13, paragraph 50). This very low coupling loss also supports the fourth waveguide portion of the third waveguide "not being substantially coupled with the first waveguide portion." Therefore, the amendment to claim 1 is fully supported.

Claim Rejections Under 35 U.S.C. § 102 (e)

Claims 1-21 were rejected under 35 U.S.C. § 102 (e) as being anticipated by Braun (U.S. 6,665,476). Applicants respectfully traverse.

Claim 1, as amended, recites the "fourth waveguide portion" of the third waveguide "crossing over" and "not being substantially coupled with the first waveguide portion" of the first waveguide (emphasis added). Braun fails to disclose wherein the "fourth waveguide portion" of the third waveguide crosses over and is not substantially coupled with the first waveguide. This cross over structure has the advantage of substantially reducing crosstalk between the first waveguide and the second waveguide (which is directionally coupled with the third waveguide). In contrast, the resonator (204) of Braun selectively couples waveguides (102 and 104), which runs counter to reducing crosstalk between waveguides (102 and 104). Therefore, claim 1 is patentable over the prior art and applicants respectfully request that the rejection of claim 1 be withdrawn.

Claims 2-21 depend from claim 1 and are therefore patentable by virtue of their dependence from claim 1.

Allowable Subject Matter

Applicants note with appreciation the Examiner's indication that claims 22-31 would be allowable if rewritten in independent form to include all the limitations of the base claim and any intervening claims.

Claim 22 has been rewritten in independent form to include all the limitations of base claim 1, as originally presented. There were no intervening claims. Therefore, applicants submit that claim 22 is in condition for allowance.

Claims 23-31 depend from claim 22 and are therefore in condition for allowance by virtue of their dependence from claim 22.

CONCLUSION

Based on the foregoing remarks, Applicants submit that the pending claims are patentable over the prior art and in condition for allowance. Should the Examiner have any questions regarding this matter, he is invited to call the undersigned at his convenience.

Respectfully submitted,
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